

CLAIMS

What is claimed is:

1. A circuit within a feedback path of a  
 5 detection circuit, said circuit comprising:
  - ✓ a first amplifier having an input connected to receive an analog signal representing a light intensity;
  - a detecting circuit, receiving a first signal  
 10 corresponding to an output of said first amplifier, for detecting a second signal corresponding to a reference level of a light intensity;
  - ✓ a converter for converting an output of said  
 15 detecting circuit to an offset voltage; and
  - a summing amplifier receiving said offset  
 20 voltage and a signal corresponding to a light intensity level, an output of said summing amplifier outputting a predetermined level upon receiving said reference level of said light intensity, said offset voltage being used to achieve said predetermined level, an output of said summing amplifier being connected to an input of said first amplifier.
- 25 2. The circuit of Claim 1 further comprising:
  - an analog-to-digital converter connected to receive a signal corresponding to an output of said first amplifier;
  - 30 a processing circuit connected to an output of said analog-to-digital converter for generating a signal relating to a characteristic of light being monitored by said detection circuit.
- 35 3. The circuit of Claim 2 further comprising laser wavelength adjustment circuitry connected to an

output of said processing circuit for adjusting a light output characteristic of a tunable laser based upon values output from said analog-to-digital converter.

5     / 4.     The circuit of Claim 2 wherein said processing circuit detects a value of a digital output of said analog-to-digital converter and controls a gain of said first amplifier in response to said digital output to cause a peak output of said analog-to-digital  
10     converter to be within a predetermined range.

5.     The circuit of Claim 1 further comprising:  
a photodetector array for detecting a light pattern generated by a light source; and  
15     a sampling circuit connected to an output of said photodetector array for generating an analog signal associated with an output of one or more photodetectors in said array, said sampling circuit being connected to an input of said  
20     summing amplifier.

6.     The circuit of Claim 1 further comprising:  
a tunable laser;  
an interference generator for receiving at  
25     least a portion of light output from said laser and generating an interference pattern ; and  
a photodetector circuit for sensing said interference pattern and generating said analog signal representing said light intensity.

7.     The circuit of Claim 1 wherein said processing circuit adjusts a gain of said first amplifier to cause a peak output of said analog-to-digital converter to be above 50% of a maximum output  
35     level of said analog-to-digital converter for selected analog signals representing said light intensity.

8. The circuit of Claim 1 further comprising a processor receiving a signal corresponding to an output of said summing amplifier and generating a signal corresponding to said offset signal.

9. The circuit of Claim 8 further comprising a digital-to-analog converter for receiving a signal from said processor and generating an analog offset voltage for said summing amplifier.

10. The circuit of Claim 9 wherein an output of said digital-to-analog converter is divided to create said offset voltage.

11. The circuit of Claim 1 wherein said reference level is a dark level of said light intensity.

12. A method performed by a detection circuit comprising:

detecting an output of an analog-to-digital converter representing a light intensity;

detecting a digital signal corresponding to a reference level of said light intensity;

converting said signal corresponding to said reference level to an offset voltage; and

summing said offset voltage and a signal corresponding to a light intensity level to generate an output having a predetermined level when said reference level of said light intensity is received by said summing amplifier, said output being amplified and connected to an input of said analog-to digital converter.